

CONTENTS

GENERAL DESCRIPTION	3
THE INTERFACE	4
ALGORITHMS	7
SPECIFICATIONS	12
CREDITS	12

GENERAL DESCRIPTION

WARP is a high-quality multi-purpose audio processing unit, able to add might and magic to almost any instrument. It contains 15 different effects that can be divided into three types:

1. **Spatial effects** – ranging from traditional reverbs to granular, experimental algorithms, with pitch-shifting, reverse and micro-loops. Most of the spatial effects feature extremely long decay times, all the way to infinity. With feedback ratios above 1 you can drive the algorithm into self-oscillation for creating endless, rich, lively soundscapes out of almost any sound. To keep the sound under control with reasonable headroom and tonal aesthetic, all the generative algorithms include dedicated modules to automatically control sound levels.
2. **Special effects** – such as flanger, sample rate/bit reduction, vintage tape simulation. All special effects include unusual functions giving them a unique SOMA flavor.
3. **Dynamic effects and filters** – compressors, distortions, filters. All the effects in this category can be applied to submixes, e.g. a rhythm section group, or even to the whole mix - so one can conventionally call them master effects. All the effects in this category also have their unique extended features, SOMA-style.

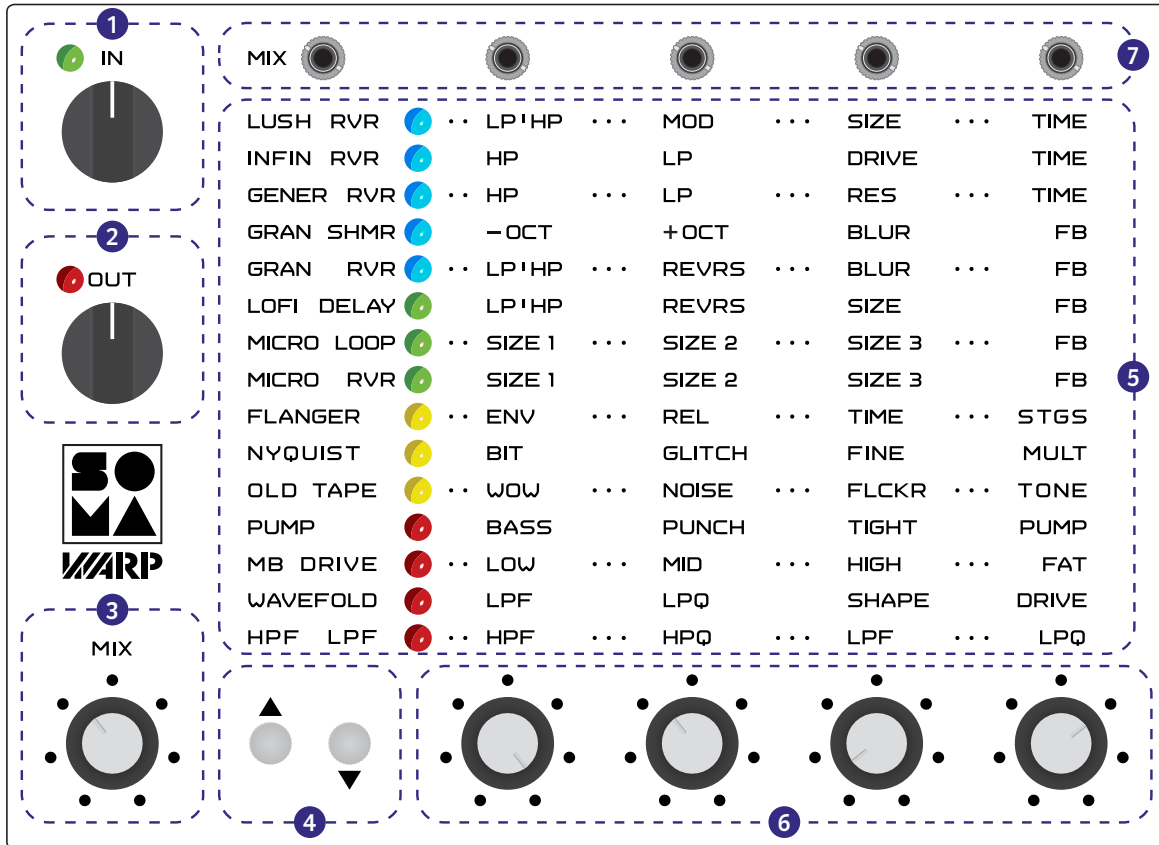
All of that makes WARP a great unit for spatial processing of any acoustic or electronic instruments – guitar, vocals, strings, synthesizers etc., – as well as processing drums or complete mixes. WARP uses top-class audio chains and AD/DA-converters, same as those found in the best professional audio-interfaces made by APOGEE, FOCUSRITE, LEXICON, ECHOAUDIO, LINE 6, NOVATION. This prevents sound deterioration, even in such demanding situations as processing a complete mix. WARP has stereo inputs and outputs, compatible with both balanced and non-balanced connections. All of the sound processing is digital, including the MIX control. The AD/DA resolution is 24bit/48KHz. The internal digital processing resolution is 32bit IEEE.

WARP has a simple, intuitive interface, with instant direct access to all functions - perfect for playing live.

Every processing parameter has a dedicated CV input, controllable via Eurorack systems and any CV source.

THE INTERFACE

TOP PANEL




1 Input level control. A two-color LED indicator shows peak signal level: green for normal, red for overload. Adjust the control for the indicator to light green, but never red.

💡 For signal with strong transient peaks, such as drums, the indicator momentarily showing red is acceptable.

💡 The higher the input signal level is, the better WARP's audio chain will work. Try to keep your input level as high as possible. In general, this applies to any device of this type, as it will maximise the available signal-to-noise ratio and dynamic range.


2 Output level control. A red indication means that the digital output's soft clipping limiter is momentarily engaged to prevent a digital overload. The limiter introduces distortion - sometimes desirable, sometimes not - so we decided to indicate when it reacts. If you don't want the limiter getting engaged, lower your input signal, or lower the processed signal level using the MIX knob, or lower the effect's intensity (e.g. filter resonance).

💡 The OUT control has **no influence** on the limiter's work. It's in the analogue part of WARP and is used to set an output level optimal for the further equipment in the chain.





 When processing drums or a complete mix, a soft distortion brought about by the limiter at the peaks enriches the sound, making it more dense and aggressive, which can be a good artistic device. If you like the resulting sound, then the soft clipping isn't a problem, no action required.

3 MIX control. Adjusts the balance between clean and processed signals. This knob works with all algorithms, which allows the use of compression, distortion or a filter in parallel with the dry signal – more controlled and subtle than with the sound 100% processed.

4 Effect select sensors, up and down. We use touch sensors instead of buttons for unlimited service life.

 To prevent accidental effect switching, the device features a **sensor lock function**. To activate sensor lock, quickly tap both sensors (Up and Down) simultaneously three times. The time interval between taps must not exceed half a second. When sensor lock is enabled, it is indicated by a series of slow blinks of the currently active effect LED. While sensor lock is active, touching either sensor will not change the effect, but will turn off the current effect LED. To deactivate sensor lock, quickly tap both sensors (Up and Down) simultaneously three times again. Deactivation is indicated by a series of fast blinks of the current effect LED.

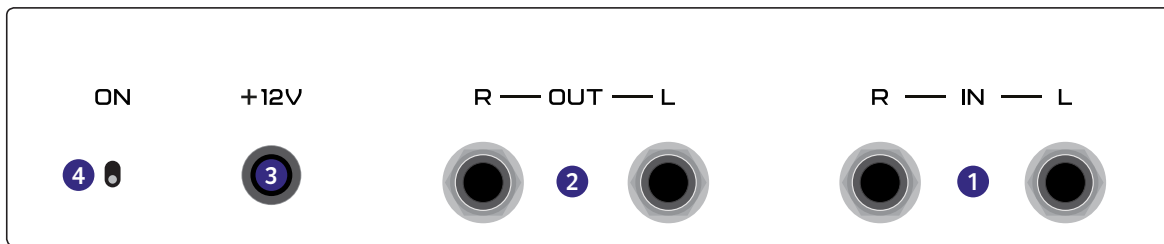
5 The current algorithm's LED indicator. Left of the lit LED is the name of the active algorithm; to the right, the parameters controlled by the 4 knobs at the bottom and the 4 CV inputs at the top. The algorithms are LED-color-marked into four groups:

-  – reverb-based
-  – delay-based
-  – special effects
-  – master effects

6 Four parameter control knobs. The parameters differ for each algorithm. See the top panel diagram for the list of parameters.

7 CV inputs (3,5 mm minijack), enabling external voltage control of the processing parameters (MIX and the four parameters individual to every algorithm). Each CV input corresponds to the knob under it and to the related parameter shown in the diagram. The voltage on the CV input is added to the position of the knob. The range of voltages accepted is 0-5 V. A negative voltage isn't processed and is equivalent to 0. Applying voltages lower than 0 V or higher than 5V won't damage the device. Input resistance of the CV inputs is 50 KOhms.

REAR PANEL



1 Inputs (6.3 mm TS/TRS Jack). Balanced and non-balanced compatible (pseudo-balanced input, the negative signal is connected to ground). If only one jack cable is inserted, into either of the two inputs, that input switches to mono mode, and its signal is sent through both channels. The input impedance for the audio inputs is 50 KOhms.

2 Outputs (6.3 mm TS/TRS Jack). Balanced and non-balanced compatible (pseudo-balanced output, negative signal connected to ground through an impedance of 100 Ohms, equal to the impedance of the positive output). If only one jack cable is inserted into any of the two outputs, that output switches to mono mode, where the stereo output signal is folded down into mono and sent to the output.

3 Power input. DC 12 V, 0.3A minimum, "+" in the center, 5.5x2.1 mm. The WARP package includes a high-quality power supply. If it gets lost or broken, use a high-quality modern switching-mode power supply with a wide range of input voltages (e.g. 100-240 V) and corresponding output parameters!

4 Power On/Off switch

ALGORITHMS

1. LUSH REVERB

A reverb, based on delay lines with modulation. With short delay times it produces a chorus effect.

LP|HP. Knob in center position: linear sound. Left from center: lowpass filter. Right from center: highpass filter.

MOD — modulation depth.

SIZE — delay line buffer size.

TIME — decay time.

2. INFINITY REVERB

A Hall-type classic reverb, with decay times all the way to infinity. With TIME knob position close to maximum, it creates self-generating soundscapes.

HP — highpass filter.

LP — lowpass filter.

DRIVE — adds soft distortion to the reverb.

TIME — decay time.

3. GENERATIVE REVERB

An experimental reverb. TIME knob at near-maximum position generates infinite soundscapes.

HP — highpass filter.

LP — lowpass filter.

RES — the resonance for HP and LP filters.

TIME — reverberation time.

4. GRANULAR SHIMMER

An experimental granular reverb with pitch shifting. FB knob at near-maximum position generates infinite soundscapes.

-OCT — a sound component of octaves shifting down.

+OCT — a sound component of octaves shifting up.

BLUR — sound diffusion.

FB — feedback time.

5. GRANULAR REVERB

Experimental granular reverb with reverse. FB knob at near-maximum position generates infinite soundscapes.

LP|HP. Knob in center position: linear sound. Left from center: lowpass filter. Right from center: highpass filter.

REVERSE — a sound component using reverse mode.

BLUR — sound diffusion.

FB — feedback time.

6. LO-FI DELAY

A Lo-Fi delay line with reverse. FB knob at near-maximum position generates infinite soundscapes.

LP|HP. Knob in center position: linear sound. Left from center: lowpass filter. Right from center: highpass filter.

REVERSE — a sound component using reverse mode.

SIZE — delay line buffer size.

FB — feedback time.

7. MICRO LOOPS

An effect based on three loops inside a large audio buffer. FB knob at near-maximum position generates infinite soundscapes.

SIZE 1 — first loop size.

SIZE 2 — second loop size.

SIZE 3 — third loop size.

FB — feedback time.

8. MICRO LOOPS REVERB

A reverb based on three loops inside a large audio buffer. FB knob at near-maximum position generates infinite soundscapes.

SIZE 1 — first loop size.

SIZE 2 — second loop size.

SIZE 3 — third loop size.

FB — feedback time.

9. FLANGER

A unique flanger effect whose delay time can be modulated by the input sound's volume. LFO modulation like you find in traditional flangers isn't available here, instead it's the envelope follower that causes the flanging effect.

ENV (envelope) — Knob in center: no delay time modulation. Knob left from center: negative modulation from the input sound's envelope. Knob right from center: positive modulation from the input sound's envelope.

REL (release) — the envelope's release.

TIME — delay time.

STAGES — the effect's intensity. Knob in center: minimum. Knob left from center: flanger with negative feedback. Knob right from center: flanger with positive feedback.

10. NYQUIST

A sample rate modulator controlled by the input signal's pitch, combined with a bit-crusher.

BIT – reduces the signal's bit rate.

GLITCH – the character of glitches when tracking the input signal's frequency.

FINE – fine-tuning the sample rate. With MULT knob at zero, FINE works within the 20 to 20,000 Hz range.

MULT – the multiplier of the sample rate's dependence on the input signal.



This algorithm has two modes:

1. A non-zero MULT knob's position engages a unique function where the sample rate is dynamically altered by the harmonics of the dominant note detected by the algorithm. The MULT control then adjusts the harmonic's multiplier, and the FINE knob fine-tunes the sample rate: knob in center = exact match to the chosen harmonic, knob left from center decreases the sample rate, knob right from center increases the sample rate.
2. With the MULT knob at zero, the algorithm works as a simple sample rate reduction, the FINE knob adjusting the sample rate within the 20–20,000 Hz range.

11. OLD TAPE

A simulation of a defective tape recorder.

WOW – periodic modulation depth.

NOISE – modulation by noise.

FLICKER – random glitch depth.

TONE – tape overload and timbre.

12. PUMP

An extreme compressor, pumping up a complete mix or a group of channels. Adds maximum density and volume to the sound, without increasing the signal's peak level. Usable as a special effect. Bass boost function included.

BASS – amplifies the low frequencies.

PUNCH – amplifies the attack of the input sounds.

TIGHT – controls the output sound's density.

PUMP – the compression amount control, combined with auto makeup.

Noise Gate

Since this effect provides significant gain, the noise of the input signal source becomes more noticeable. To keep the output signal clean, a noise gate has been added to this effect.

If you prefer accurate processing of quiet sounds that might otherwise be cut off, you can disable the noise gate.

Noise gate on/off procedure:


While in this algorithm, press both algorithm select buttons simultaneously and hold them for at least 3 seconds.

While you hold the buttons, a blinking LED indicates the current state of the noise gate:

- Blinking **upper** LED — noise gate is **ON**.
- Blinking **lower** LED — noise gate is **OFF**.

Disabling the noise gate is shown by an animation running from top to bottom across the LEDs. Enabling it is shown by an animation running from bottom to top.

By default (after powering on WARP), the noise gate is enabled.

 With PUNCH and TIGHT set to near-maximum, it works as a soft distortion.

13. MULTIBAND DRIVE


A three-band distortion/overdrive, processing the input signal in three frequency bands independently (low, mid, high). Allows control of the harmonic content in each of the three bands and achieving effects impossible with conventional single-band distortion.

LOW — the amount of overdrive for the low frequencies.

MID — the amount of overdrive for the mid frequencies.

HIGH — the amount of overdrive for the high frequencies

FAT — adds harmonics (positive feedback in the filters).

 With LOW knob at over 50% and FAT knob near-maximum, a soft self-oscillation is possible without an input signal.

14. WAVEFOLDER

A wavefolder is usually part of a synthesizer structure. WARP makes it possible to use it as a separate device. Unlike conventional distortion which clips the signal's amplitude on hitting a peak, a wavefolder reacts to the amplitude increase by bending the signal up and down, which can produce unique sounds.

LPF — lowpass filter cut frequency (positioned after the wavefolder).

LPQ — lowpass filter resonance.

SHAPE — changes the curve by which the signal is processed, starting with sinusoidal with the knob full left, ending with harmonic-heavy complex forms with the knob full right.

DRIVE — the amount of wavefolder drive.

Noise Gate

Since this effect provides significant gain, the noise of the input signal source becomes more noticeable. To keep the output signal clean, a noise gate has been added to this effect.

If you prefer accurate processing of quiet sounds that might otherwise be cut off, you can disable the noise gate.

Noise gate on/off procedure:

While in this algorithm, press both algorithm select buttons simultaneously and hold them for at least 3 seconds.

While you hold the buttons, a blinking LED indicates the current state of the noise gate:

- Blinking **upper** LED — noise gate is **ON**.
- Blinking **lower** LED — noise gate is **OFF**.

Disabling the noise gate is shown by an animation running from top to bottom across the LEDs. Enabling it is shown by an animation running from bottom to top.

By default (after powering on WARP), the noise gate is enabled.

15. HPF LPF

A combination of highpass and lowpass filters. When the HPF's frequency is lower than that of the LPF, the two filters work in serial. When the HPF's frequency approaches and exceeds that of the LPF, the filters gradually go into parallel mode. That makes all the knob positions usable and, in essence, work as two effects in one.

HPF — highpass filter cut frequency.

HPQ — highpass filter resonance.

LPF — lowpass filter cut frequency.

LPQ — lowpass filter resonance.

Algorithms created by:

2–9, 12–15 — Vlad Kreimer

1, 10, 11 — Max Manakov

SPECIFICATIONS

Number of algorithms	15
Minimum input voltage	0.35 V peak-to-peak
Maximum input voltage	8.3 V peak-to-peak
Input impedance	50 KOhm
Output impedance	100 Ohm
CV nominal range	0-5 V
CV input impedance	50 KOhm
Sample/bitrate	48 KHz/24bit
Frequency range	10 - 22000 Hz
Power voltage	DC 12 V *
Power input polarity	Center positive
Current	0.25 A
Dimensions	220x170x70 mm
Weight	1.5 kg

* Use only the power supply unit included with the device! If that fails, it can be replaced with a high-quality modern switching-mode power supply unit with DC 12V output voltage, "plus" in the center, and output current of 0.3 A or higher. The power supply unit must have a wide input voltage range of 100-240 V AC. Such power supplies have an excellent stabilization of their output voltage, which is necessary for WARP to work. Do not power the device with an unregulated transformer power supply — this may cause damage not covered by the warranty.

CREDITS

Andrzej Slovik — production organizing and control
 Valeriy Zaveriyayev — user manual design and layout
 Vlad Kreimer — concept, interface, sonic design, visual design, schematics, construction, programming, DSP, audio, video, performance
 Vladimir Kornienko — English translation for the user manual and demo performance
 Grzegorz Lacek — organization, marketing, advertisement, sales, management and communication
 Marcin Bednarz — operating manager
 Marta Lacek — communications and sales
 Maxim Manakov — sonic design, programming, printed circuit-board design, constructing, obtaining sacred artifacts
 Regina Volkova — management, communications, website, user manual editor
 Stanislav Trandafilov — organisation, management, engineering, video
 Thomas Lundberg — communication, utopian linguist, proofreader

